IN THE CLAIMS

1. (Original) An underwater wide-band electroacoustic transducer, comprising:

a plurality of groups of piezoelectric ceramic units, wherein each group of piezoelectric ceramic units has a different dimension and separates from each other by different distances, and the frequency response of the piezoelectric ceramic units are banded together to form a wide bandwidth response; and

an acoustic window material for packaging all the piezoelectric ceramic units through a mold injection.

2. (Original) The transducer of claim 1, wherein the piezoelectric ceramic units have a hollow cylindrical shape and the piezoelectric ceramic units in each group differ in radius from the piezoelectric ceramic units in other groups.

3. (Original) The transducer of claim 1, wherein the piezoelectric ceramic units having a greater dimension has a resonance frequency peak at a lower frequency and vice versa.

4. (Original) The transducer of claim 1, wherein the piezoelectric ceramic units is packaged by placing the underwater wide-band electroacoustic transducer inside a set of mold, preheating the mold to a temperature slightly higher than the temperature for mold injection of the acoustic material, putting the mold inside a vacuum chamber so that air is evacuated, injecting acoustic plastic into the mold and finally heating the entire mold for aging.

5. (Original) The transducer of claim 1, wherein the acoustic window material includes a PU plastic compound having an acoustic property ρc very close to that of the

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water and an equivalent mass that produces a smooth transmitting response curve for the underwater wide-band electroacoustic transducer.

6. (New) An underwater wide-band electroacoustic transducer, comprising:

a plurality of groups of piezoelectric ceramic units symmetrically positioned within the underwater wide-band electroacoustic transducer, wherein each group of piezoelectric ceramic units has a different dimension and separates from each other by different distances, and the frequency response of the piezoelectric ceramic units are banded together to form a wide bandwidth response; and

an acoustic window material for packaging all the piezoelectric ceramic units through a mold injection.

7. (New) The transducer of claim 6, wherein the piezoelectric ceramic units have a hollow cylindrical shape and the piezoelectric ceramic units in each group differ in radius from the piezoelectric ceramic units in other groups.

8. (New) The transducer of claim 6, wherein the piezoelectric ceramic units having a greater dimension has a resonance frequency peak at a lower frequency and vice versa.

9. (New) The transducer of claim 6, wherein the piezoelectric ceramic units is packaged by placing the underwater wide-band electroacoustic transducer inside a set of mold, preheating the mold to a temperature slightly higher than the temperature for mold injection of the acoustic material, putting the mold inside a vacuum chamber so that air is evacuated, injecting acoustic plastic into the mold and finally heating the entire mold for aging.

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10. (New) The transducer of claim 6, wherein the acoustic window material includes a PU plastic compound having an acoustic property ρc very close to that of the water and an equivalent mass that produces a smooth transmitting response curve for the underwater wide-band electroacoustic transducer.

11. (New) The transducer of claim 6, wherein each group of the piezoelectric ceramic units comprises at least two substantially identical piezoelectric ceramic units.

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